Infrastructure Rehabilitation Program

Construction Grant Application

October 2003

Eligible - Projects to replace or rehabilitate existing leaking or failing water distribution system components.

Not Eligible - Projects to replace wells, replace or install domestic water meters, develop new water supply or surface water diversion, construct agricultural water distribution system improvements or make improvements to private property.

Total Funding Authorized - $60 million authorized.

Maximum Grant Per Project - $5 million.

Who is Eligible to Apply - Public agencies or incorporated mutual water companies that own and operate water systems serving 200 to 16,000 connections, in economically disadvantage service areas (Median household income less than $40,000 **and** unemployment greater than 9 percent).

Application Deadline - Continuous.

DWR Contacts
Linda Buchanan, (916) 651-9645, e-mail lbh@water.ca.gov (administrative)
David A. Rolph, (916) 651-9635, e-mail drolph@water.ca.gov (technical assistance)
Farhad Farnam, (916) 653-9415, e-mail farhad@water.ca.gov (economics)

If you need this publication in an alternate form, contact the Division of Planning and Local Assistance at (916) 651-9236 or the Department's Office of Water Education at 1-800-272-8869.

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Introduction

The Infrastructure Rehabilitation Program under the Safe Drinking Water, Clean Water, Watershed Protection and Flood Protection Act (Proposition 13, Water Code Division 26) authorizes the California Department of Water Resources to issue grants to public agencies, and incorporated mutual water companies in economically disadvantaged service areas to finance construction projects and feasibility studies for the rehabilitation or replacement of existing water distribution systems and appurtenant facilities.

Eligible types of projects include projects that replace, rehabilitate, or restore existing leaking water distribution systems that deliver water for domestic, municipal or industrial uses. Eligible components may include pipelines, tanks, pump stations, valves, flow meters, and all other appurtentanent water delivery facilities. Eligible projects may also include projects that replace failing water distribution system components, such as tanks or pump stations, which threaten the health, safety, welfare and economy of the areas relying on the system. These failing components need not be leaking; however, to considered for funding the applicant must provide supporting documentation demonstrating that a significant risk of failure exists for the component.

Projects not eligible for funding include proposed projects for the construction or replacement of wells, surface water diversions, development of new water sources, agricultural water distribution systems or installation of new domestic water meters or improvements to private property.

Up to $5 million is available for each eligible construction project. Project financing, in addition to the DWR grant, shall not be considered when determining financial feasibility unless a commitment of funding has been issued.

CALFED released the Bay-Delta Program Final Programmatic EIS/EIR on July 21, 2000 and a Record of Decision on August 28, 2000. As described in these documents, the Bay-Delta Program includes strategies to address ecosystem health, water supply reliability, water quality, and levee system integrity. DWR will coordinate with CALFED to ensure that none of the Infrastructure Rehabilitation projects with the potential to impact the Bay Delta System, which are funded under this program, conflict with CALFED goals and objectives.

This application is only for applicants seeking a construction grant for an Infrastructure Rehabilitation project. A separate application is available for applicants seeking a feasibility study grant.

Copies of the Infrastructure Rehabilitation Program construction grant application and feasibility study grant application are available on our web site at: **www.water.ca.gov/grants-loans**.

General Instructions

Who May Apply

Applicants must be either public agencies (cities, counties, cities and counties, joint powers authorities, or other political subdivisions of the State), or incorporated mutual water companies. Applicants must own and operate their water distribution systems and have between 200 and 16,000 water service connections. The system must deliver water for domestic, municipal, or industrial uses. In addition, the service area must meet the economically disadvantaged criteria as set forth in Section 79151(c) of the bond law (an annual median household income less than $40,000 and an unemployment rate greater than 9 percent, based on the most recent federal census).

PLEASE BE ADVISED: As required by Senate Bill 610, (Chapter 643, Statutes of 2001, Costa), agencies subject to the Urban Water Management Planning Act must have adopted an Urban Water Management Plan and submitted it to DWR to be eligible for Proposition 13 funding. If you have questions regarding your agency's responsibility under the Urban Water Management Planning Act, please contact David Todd, in DWR's Office of Water Use Efficiency at (916) 651-7027, or by e-mail at dtodd@water.ca.gov.

Eligible Projects

This grant program is intended to help fund feasible, cost effective, construction projects undertaken to reduce or eliminate significant distribution system water losses or replace failing system components. Infrastructure Rehabilitation projects, as defined in Appendix VI (page 44), are eligible for funding.

Priority will be given to projects proposing to reduce or eliminate the greatest distribution system water losses. In addition, equal priority will be given to projects proposing to replace failing water distribution system components that pose the greatest threat to the health, safety, welfare and economy of the distribution system service area.

Eligible projects **do not include** wells, surface water diversions, new sources of water supply, installation of new domestic water meters or improvements to private property.

Geographic Scope

Projects throughout California will be considered for funding.

Conflict of Interest and Confidentiality

All participants are subject to State and federal conflict of interest laws. Failure to comply with these laws, including business and financial disclosure provisions, will result in the application being rejected and any subsequent contract being declared void. Other legal action may also be taken. Accordingly, before submitting an application, applicants are urged to seek legal counsel regarding potential conflict of interest concerns that they may have and requirements for disclosure. Applicable statues include, but are not limited to, Government Code Section 1090, and Public Contract Code Sections 10410 and 10411 for State conflict of interest requirements.

Applicants should note that by submitting an application, they waive their rights to the confidentiality of that application. Each application will be reviewed by DWR staff. Once the application is signed and

submitted to DWR, any privacy rights as well as other confidentiality protections afforded by law will be waived.

How to Submit an Application

Applications may be submitted on a continuous basis. All forms and attachments are necessary for a completed application (see Appendix 1, Page 33 for a checklist of the attachments required for a completed application). Only completed applications will be evaluated and prioritized for funding. Incomplete applications will be carried forward to the next evaluation cycle.

Please call Linda Buchanan (916) 651-9645 if you have any questions about completing this application.

Applications may be mailed or submitted in person. Please submit one original, five (5) hard copies and one (1) electronic file, if available, of the application to:

The Department of Water Resources
Division of Planning and Local Assistance
Post Office Box 942836
Sacramento, California 94236-0001
Attention: Linda Buchanan

FedEx/UPS:
Department of Water Resources
Division of Planning and Local Assistance
1416 9th Street, Room 338
Sacramento, CA 95814
Attn: Linda Buchanan

Completed applications will be evaluated and prioritized for funding annually and awards announced in the Spring of each year up to the limit of authorized funding. DWR will determine the number of eligible applications to be funded at the close of each evaluation cycle based on the funding available. Prioritized applications not funded may, at the discretion of the applicant, be reconsidered without modification, or be revised to improve competitiveness.

Application Evaluation and Selection Process

Each application will first be evaluated for completeness using the checklist contained in Appendix I (page 33). Applications that contain all of the attachments listed in Appendix I will be evaluated and prioritized annually. Applications will first be evaluated to determine if they meet all of the Threshold Criteria listed below. Those applications that meet the Threshold Criteria will then be scored using the Ranking Criteria listed in the table on page 8. The maximum score possible is 35 points. During the administration of this program and the evaluation of applications, DWR may request additional engineering, technical, financial, economic, hydrologic, soil and water quality, environmental, water rights, and legal analyses and justification. Applicants will be notified if additional documentation is required.

Threshold Criteria

Applications for construction grants for Infrastructure Rehabilitation projects must meet all Threshold Criteria to be evaluated further for funding. The Threshold Criteria, which must be supported by documentation contained in Parts A through F of this application package, include the following:

Part A Organizational, Financial and Legal Eligibility

Part B Project Type Eligibility

Part C Water Savings and/or Failing Distribution System Component

Part D Engineering and Hydrologic Feasibility

Part E Adequacy of Plan for Completion of Environmental Documentation

Part F Cost Effectiveness

The information provided in Parts A through F will be reviewed and evaluated by DWR staff to determine if the requirements for each Threshold Criterion have been met.

Ranking Criteria

Applications that meet the Threshold Criteria, will be scored by DWR, based on the Ranking Criteria contained in Part F. Each Ranking Criterion will be scored on a scale of 1 to 5, with 1 being "Low," 2 being "Medium/Low", 3 being "Medium," 4 being "Medium/High" and 5 being "High." The score for each criterion will then be multiplied by a weighting factor to achieve a "weighted score" for each criterion. Next, the weighted ranking criteria scores are added to obtain a total score for the application. The maximum score for the Ranking Criteria is 35 points.

Staff will review applications that meet the Threshold Criteria and compile a list of projects proposed for funding based on scoring of the Ranking Criteria contained in Part G.

Following each evaluation cycle, DWR will commit funding to eligible applicants in prioritized order based on the availability of funds. **Applicants should not begin construction on their projects prior to receipt of a commitment of funding. Costs incurred for construction prior to the commitment of funds will not be reimbursed.**

Preparation of contracts will begin as soon as projects are approved. However, it may take several months to develop and finalize the contracts for successful applications, depending on the complexity of each contract and the readiness of the applicant. Funding agreements are not final until signed by authorized representatives of the applicant and DWR.

Ranking Criteria Table

Criteria	High (5)	M/H (4)	Med (3)	M/L (2)	Low (1)	Weight	Total
G-1. Financial Need						2	
G-2. Readiness to Proceed						1	
G-3. Estimated System Water Losses						2	
G-4. Threat to Health, Safety, Welfare, and Economy						2	
TOTAL SCORE							

Applications that meet all eligibility criteria, but are not selected for funding can be reconsidered during the next evaluation cycle. At the applicant's discretion, proposals can be revised to improve the application's competitiveness. DWR staff is available to provide technical guidance to applicants wishing to revise their applications. For assistance, contact David A. Rolph at (916) 651-9635 (e-mail drolph@water.ca.gov).

Part A—Organizational, Financial and Legal Information State of California, The Resources Agency, Department of Water Resources

A-1
Application cover sheet

Application for an Infrastructure Rehabilitation Program construction grant under the Safe Drinking Water, Clean Water, Watershed Protection and Flood Protection Act.

The _____
(Exact legal name of applicant for grant)

of _____
(Mailing address of applicant)

of the County of_____ State of California, does hereby apply to

the California Department of Water Resources for a grant in the amount of $ _____

for the following construction project under the Safe Drinking Water, Clean Water,

Watershed Protection and Flood Protection Act:

_____
(Specify project title)

By _____ Date _____
(Original signature of authorized representative, see Section A-5 on page 14)

_____
(Print or type name of authorized representative)

Title _____

Telephone (___) _____

Fax (___) _____

E-mail _____

A-2 Agency representatives

Project contact person: Name _____

Title _____

Telephone (___) _____

Fax (___) _____

E-mail _____

Alternate contact person: Name _____

Title _____

Telephone (___) _____

Fax (___) _____

E-mail _____

Type of Organization: _____

(Water district, irrigation district, city, etc.)

California Assembly Representative: _____

District No. _____

California Senate Representative: _____

District No. _____

Attach a copy of the agency's charter or enabling authority, or the mutual water company's articles of incorporation. Also provide a list of the names and titles of the agency's or company's officers.

Mark as Attachment A-2.

A-3 Project cost

(1) Prepare a proposed project budget *(complete Attachment A-3 on page 12, "Project Budget—Capital Costs"; see Table A-3 on page 13 for a sample project budget; if additional details need to be provided, attach a separate page)*. Contingency costs must be included in the budget. These costs must be a minimum of 15 percent for every line item.

(2) Provide financing information about the proposed project *(see below)*.

Mark as Attachment A-3.

Total cost of project: $_____

Amount to be funded under the Safe Drinking Water, Clean Water, Watershed Protection and Flood Protection Act: $_____

Amount to be funded by the applicant: $_____

Indicate applicant's source of funds: _____

Amount to be funded externally: $_____
(Include any other pending loan or grant applications)

Lender/Grantor: _____	Lender/Grantor: _____
Amount: $_____	Amount: $ _____
Interest Rate _____Percent	Interest Rate _____ Percent
Term: _____ Years	Term: _____ Years
Annual Payment: $_____	Annual Payment: $_____

If additional project financing consists of loans from any source, please complete Appendices VII and VIII (pages 48 and 49).

Attachment A-3
Project budget—capital costs

Capital Cost Category	Item Description	Who Will Perform Work?	Item Quantity	Unit Cost in Dollars	Extended Cost in Dollars	Contingency Cost @ 15%	Subtotals
Land Purchase/ Easement							
Planning/Design/ Engineering							
Materials/ Installation							
Structures							
Equipment Purchases/ Rentals							
Environmental Mitigation/ Enhancement							
PROJECT SUBTOTAL							
Construction Administration & Overhead							
Legal & License Fees							
Other							
TOTALS							

Table A-3
Sample project budget—capital costs

Capital Cost Category	Item Description	Who Will Perform Work?	Item Quantity	Unit Cost in Dollars	Extended Cost in Dollars	Contingency Cost @ 15%	Subtotals
Land Purchase/ Easement	not applicable						
Planning/Design/ Engineering	plans, specifications, inspection	consulting firm	1	144,419	144,419	21,663	166,082
Materials/ Installation	see description under structures						
Structures	10 million gallon prestressed concrete water storage reservoir (lump sum, including materials & installation)	contractor	1	2,840,248	2,840,248	426,037	3,266,285
Equipment Purchases/ Rentals	not applicable						
Environmental Mitigation/ Enhancement	not applicable						
PROJECT SUBTOTAL					2,984,667	447,700	3,432,367
Construction Administration & Overhead	office work, meetings, CEQA	staff	5%	3,432,367	171,618	25,743	197,361
Legal & License Fees	technical certification, contracts	staff counsel	2%	3,432,367	68,647	10,297	78,944
Other	not applicable						
TOTALS					3,224,932	483,740	3,708,672

A-4 Plat map of service area

Provide a plat map of the service area responsible for project financing, including a list of all property parcels affected by the project.

Mark as Attachment A-4.

A-5 Authorizing resolution

Provide a resolution adopted by the applicant's governing body designating an authorized representative to file an application for an infrastructure rehabilitation construction grant under this program. Appendix IV (page 39) can be used as a model for this resolution.

Mark as Attachment A-5.

A-6 Financial statements

Attach copies of audited financial statements for the last three fiscal years of operation. Include balance sheets, income statements, sources and uses of funds statements, and the most recent annual budget. Please provide separate detail for the water enterprise fund, if applicable to your organization.

Mark as Attachment A-6.

A-7 Cash reserves

List all cash reserves (restricted and unrestricted) and any planned uses of these reserves.

Mark as Attachment A-7.

A-8 Rate and service structure

Attach the rate structure in effect on January 1, 1999, and the rate structure for the last three operating years.

Mark as Attachment A-8.

Current estimated average monthly water bill: $ _____

Current Residential Average month: $ _____

Estimated average water bill as of January 1, 1999: $ _____

*Total connections in service area: _____

Number of residential service connections: _____

Number of other service connections
(commercial/industrial, etc., specify type): _____

Number of undeveloped parcels in service area: _____

Number of developed residential parcels: _____

Number of developed commercial parcels: _____

Indicate volume of water delivered through system per year: _____

* Water Service Connections

Document how the number of service connections was determined. Count actual active domestic, industrial, and municipal connections (agricultural water connections do not count). Connections with current paid standby charges are allowable; abandoned connections are not. Provide documentation on the number of water bills issued. Also include copies of the agency's last three Annual Reports submitted to the Department of Health Services (these reports should include number of connections, description of service interruptions, etc.). If no Annual Reports have been submitted, explain the situation.

Applicants may consider "equivalent" connections for permanent multi-residential housing units – such as apartments, duplexes, and mobile home parks with permanent spaces (concrete slabs) – that are served by single connections (single water bill per facility). In this situation, one "equivalent" connection can be considered for each dwelling unit. However, this figure will need to be reduced in proportion to the typical vacancy rate for each facility. For example, if a 50-unit apartment complex has a vacancy rate of 10 percent, the number of equivalent connections would equal 45 (50 less [50 x 0.10] = 45). Equivalent connections will not be considered for transient housing (campgrounds, motels, hotels, etc.), jails, prisons, schools, or other non-residential housing.

A-9 Population data

Total population of service area:
Year-round/Permanent: _____ As of: _____
(Date)

Seasonal/Part-time: _____ As of: _____
(Date)

Seasonal peak population: _____ Persons per household: _____
(If applicable)

Source of information on population data:

_____

***Unemployment Rate:**

Provide the unemployment rate of the service area as based on the 2000 Census: ____%

Source of information on unemployment:

_____

***Annual median household income of water service area as based on the 2000 Census:**
$_____

Source of information on household median income:

_____

What tax rate areas are included in the area to benefit from or pay for the project? *(This information is available from the county assessor.)*

_____

County annual median household income:
(Available from the county planning department)

$_____ As of: _____
(Date)

Source of information on county median income:

_____

Mark as Attachment A-9.

*Unemployment and annual median household income data are available from the 2000 federal census for cities, census designated places (CDPs), census tracts, and census block groups. Applicants will need to determine the appropriate socioeconomic geography that most closely approximates the boundaries of their service areas. Submit a map of the service area with the current census overlay used in determining the unemployment and annual median household income information. If the service area covers several census block groups, unemployment and median household income may need to be prorated by population (use census blocks). For assistance in determining this information, please contact Julie Hoang with the California Department of Finance at (916) 323-4086 Ext. 2531. See Appendix IX (page 50). For an example of how an applicant can determine if their service area meets the economically disadvantaged area eligibility criteria for both median household income (less than $40,000 per year) and unemployment (greater than 9.0 percent).

A-10 Agency authority

Have the applicant's attorney provide a written legal opinion addressing the following six questions pertaining specifically to this funding application. The response to each question must include a citation of statutory authority or other reference.

1. Does the applicant have the legal authority to enter into a funding contract with the State of California? If so, cite the statutory authority.
2. What is the statutory authority under which the applicant was formed and is authorized to operate?
3. Is the applicant required to hold an election before entering into a funding contract with the State? Cite the statutory authority or other reference.
4. If a loan from other sources is part of the project financing, does the applicant have the legal authority to levy assessments and charges sufficient to repay such a loan? Cite the statutory authority or other references. If there are no loans associated with the project financing, so state.
5. Will the funding agreement between the applicant and the State of California be subject to review and/or approval by other government agencies? If yes, identify all such agencies (e.g., Local Area Formation Commission, local governments, U.S. Forest Service, California Coastal Commission, California Department of Health Services, etc.)
6. Describe any pending litigation that may impact the financial condition of the applicant, the operation of the water facilities, or its ability to complete the proposed construction project. If none is pending, so state.

Mark as Attachment A-10.

A-11 Operation and maintenance

Provide a summary of the operation and maintenance cost for your current water facilities. Identify the source of revenue to fund such costs.

Provide an estimate of operation and maintenance costs after completion of the project proposed for funding under this application and the impact of these costs on your current O&M budget.

Identify a source of funds to address any additional O&M costs that may result from the project.

Mark as Attachment A-11.

Part B—Project Type Eligibility

B-1 Types of eligible projects

Eligible Infrastructure Rehabilitation projects involve the repair, replacement, restoration, or rehabilitation of existing water distribution systems that deliver water for domestic, municipal, or industrial uses. Eligible projects must reduce or eliminate significant distribution system losses or replace failing water distribution system components that threaten the health, safety, welfare and economy of the area served by the system.

Highest priority will be given to those projects that eliminate or reduce the greatest distribution system water losses and, by replacement of a failing system component, eliminate or reduce the greatest risk to the health, safety, welfare and economy of the service area from a failing system component.

Eligible facilities may include, but are not limited to:

- Pipelines
- Pump stations
- Valves
- Flow meters
- Reservoirs
- Failing tanks

Types of projects **not eligible** for funding include wells, water meter retrofits, installation of water saving devices or appliances, agricultural water distribution systems, surface water diversion, development of new water supply or expansion of existing water storage capacity, or improvements to private property

For water storage tank replacement projects, clearly show how the capacity of the new tank was determined, if it is greater than that of the existing tank (show peak demand calculations; state assumptions). Provide justification for any increase (fire flow requirements, number of existing connections, etc.). Proposed tanks with capacities greater than that determined appropriate by California Waterworks Standards to meet existing demands are considered water supply projects and therefore are ineligible to receive funding under the Infrastructure Rehabilitation program.

B-2 Map and narrative description of project

Provide a detailed narrative description of the proposed Infrastructure Rehabilitation project. Discuss the purpose of the project, and the project goals in the context of your agency's water management plans. If the project consists of multiple components, describe all of them and their relationship to one another. Identify which components will be funded by the requested DWR grant. Also, describe how the project facilities relate to other water-related facilities in the system service area.

In addition to providing a description of the distribution system facilities to be installed (including any water storage tanks), be sure to provide details on the existing facilities to be replaced or rehabilitated, including: total length of pipe (linear feet), diameter of pipe, type of pipe, length of each type of pipe, condition of each type of pipe and date(s) of installation for each type of pipe; where applicable, include the type, age and capacity of any tank or tanks to be replaced or rehabilitated. To provide context, also

provide the same information for the rest of the existing distribution system outside of the proposed project.

Provide a detailed map of the project area, preferably a 1:24,000 scale copy or original of a 7.5-minute USGS quad sheet. Mark the location of the project components. Identify the water source and all conveyances from the water source to the proposed project on the map.

Mark the project description and map as Attachment B-2.

B-3 Legal description of project site

Provide a legal description of the project site, stating the location of the project (including county, nearest city, section number(s), township, range, base, and meridian). Include legal descriptions of beginning and ending points of the projects, if available and applicable.

Mark as Attachment B-3.

B-4 Timetable

Provide a timetable showing tasks including the expected project completion date. The timetable should show the start and end dates for the project milestones. The following tasks should be included on the timetable:

- develop financing
- develop environmental documentation
- design project
- acquire rights of way
- acquire all necessary permits
- begin construction
- implement environmental mitigation or enhancement

The timetable should preferably be in a horizontal bar chart format. Tasks may overlap.

NOTE: If the proposed project is to be phased, expand the project timetable to include all of the necessary information for each phase. Successful applicants will be contractually obligated to complete all project phases that comprise the overall project scope on which DWR's findings of eligibility are based. For a given project, this requirement applies equally, whether it is funded solely by a DWR Infrastructure Rehabilitation grant, or from combined sources, including the DWR grant.

Mark as Attachment B-4.

Part C – Water Savings/Failing Distribution System Component

C-1 Total water savings to be produced by the project

Water distribution systems experience water losses that can be eliminated or reduced. Losses can be a combination of evaporation, transpiration, and percolation to "unusable" or "usable" destinations within a hydrologic basin. This bond law program provides grants for Infrastructure Rehabilitation construction projects to help applicants eliminate or reduce these losses. For this program, the savings of water supplies currently being lost is termed "total annual water savings."

Include a narrative description of how, within the area of the proposed project, the total annual water losses are currently occurring. Explain how the project will reduce or eliminate those losses. Quantify the savings to occur by reducing or eliminating the water losses. Cite and attach any pertinent back-up data, such as leak detection surveys, water audits, leakage management analyses, pressure management analyses or zone flow analyses.

Mark as Attachment C-1.

Calculate the total annual water savings (in acre-feet per year) to be produced by the project.

Enter this amount on Table 1 in Appendix III on page 35.

To calculate project water savings, existing water losses need to be determined. See Appendix X (page 53) for project water loss measurement guidelines. Applicants are encouraged to use these guidelines where possible. However, if other methods are used to calculate water losses, provide justification, state assumptions, and show calculations.

For assistance in determining the quantity of water savings, call David A. Rolph at (916) 651-9635.

Note: DWR staff evaluation may result in changes to the estimates. Staff may call the project contact person identified in the application if there are questions.

C-2 Failing system component(s)

Projects involving the replacement of failing water distribution system components that threaten the health, safety, welfare, and economy of the service area that relies on that system, are eligible for funding under this grant program. These components may or may not be leaking. Examples of failing components include, but are not limited to, water storage tanks or pump stations that need to be replaced. Pipelines with main breaks may also be considered if they are going to be replaced.

Include, if applicable, a narrative description of any failing system components to be replaced by the proposed project. Describe the probability of failure and the potential impact on the project area in the event of failure. Explain how the proposed project will either reduce or eliminate the risk of failure. For failing pipelines, document the recent history of catastrophic failures and describe the specific impacts of these failures.

Applicants must demonstrate that the specified water distribution system component is failing. Include written certification by a California registered civil engineer that the component is failing or is likely to

fail within two years from the date of application. Provide supporting documentation, such as a condemnation order.

Mark as Attachment C-2.

Part D – Engineering and Hydrologic Feasibility

The project must be feasible from an engineering and a hydrologic standpoint. The information requested in Sections D-1 through D-4 will be used by DWR to confirm that the proposed Infrastructure Rehabilitation facilities are engineeringly and hydrologically feasible. Give references for all sources of information provided in Part D.

D-1 Certification statement

A certification statement regarding project feasibility must be signed by a California registered civil engineer working on this project. This statement is found in Appendix II (page 34); be sure to include the complete statement. Cite the references, such as feasibility studies, preliminary engineering reports, engineering design studies, hydraulic analyses, leakage management reports, pressure management reports, hydrologic studies and water rights permits, used to determine feasibility.

Mark the certification statement and citation of reference sources as Attachment D-1.

D-2 Project reports and previous studies

Provide a copy of all reports and studies prepared for the proposed infrastructure rehabilitation project, including feasibility studies and preliminary engineering reports. If a feasibility study has not been completed for the project, explain what has been done to determine the project's feasibility and provide supporting documentation.

Mark as Attachment D-2.

D-3 Project plans and specifications

Provide a copy of the most complete plans and specifications available for the project. If final plans and specifications are not available, submit a copy of preliminary project plans and specifications. The preliminary plans should indicate, at a minimum, types of materials, dimensions and location. Preliminary plans and specifications need to be of sufficient detail to generate an engineer's cost estimate for the proposed project that will meet the requirement for a reasonable cost estimate specified under Section 79155 (b) (2) of the water code. Preliminary project specifications should include citations of all standards used.

A California registered civil engineer must prepare the preliminary and final plans and specifications. Each final plan sheet and the cover sheet of the final specifications must be signed and stamped by a California registered civil engineer.

Mark the plans and specifications as Attachment D-3.

D-4 Construction inspection plan

Provide a detailed construction inspection plan describing who will inspect the site and project before, during, and after construction, and when inspections will be made.

Mark as Attachment D-4.

Part E – Adequacy of Plan for Completion of Environmental Documentation

DWR will evaluate, rank, and select projects for funding prior to completion of appropriate environmental documentation; however, all such documentation must be completed before DWR will enter into contracts for selected projects or disburse any grant funds.

The application must include a plan for compliance with all applicable environmental documentation. The plan should address all the potential environmental, social and economic impacts of the proposed project required under the California Environmental Quality Act (CEQA) and, if appropriate, the National Environmental Policy Act (NEPA). The plan must identify all predictable adverse impacts associated with the proposed project and describe the measures that will be taken to avoid or mitigate these impacts.

E-1 CEQA and NEPA

For complete information on the CEQA process, applicants may request a copy of the California State Clearinghouse Handbook by calling (916) 445-0613 or by submitting a written request to:

The State of California Governor's Office
Office of Planning and Research
1400 Tenth Street
Sacramento, CA 95814

If the proposed project is subject to federal jurisdiction, NEPA requirements may apply. In this case, compliance with NEPA must also be demonstrated.

In order to rank projects for funding, the applicant must submit to DWR the following items:

- A detailed plan for compliance with all applicable environmental laws.
- A schedule for completion of all appropriate environmental documentation.
- An Environmental Impact Checklist. Use the current CEQA Environmental Impact Checklist located at the following Web site: http://ceres.ca.gov/topic/env_law/ceqa/guidelines/appendices.html.

Applicants that have not initiated their environmental documentation are strongly encouraged to conduct their Initial Studies or Environmental Assessments as soon as possible. Applicants already in the process of preparing their CEQA/NEPA documentation need to inform DWR of the current status of that documentation, and provide a description of the documentation that has been completed (include copies of all applicable notices). Applicants who have completed their CEQA/NEPA documentation need to provide DWR with copies of the appropriate documentation, including the recorded Notice of Determination.

Mark the Plan, Schedule and Environmental Impact checklist, as Attachment E-1.

E-2 Demonstration of community support and/or opposition

Submit copies of any letters from local environmental organizations, community groups, political bodies, as well as newspaper articles demonstrating support for the proposed project.

Describe any opposition to the proposed project. Identify the party(ies) in opposition, and briefly discuss the situation.

Mark as Attachment E-2.

E-3 Permits, easements, licenses, acquisitions, and certifications

List all required permits, easement rights, licenses, land acquisitions, and certifications of approval of federal, State, and local agencies that may be required for the proposed project. If the proposed project will require Section 404 permits, or streambed alteration permits, address this in the plan for CEQA/NEPA compliance.

If the proposed project will involve or impact a reservoir or dam of any dimension, the applicant will need to contact DWR's Division of Safety of Dams at (916) 445-7606.

Submit a plan and schedule for obtaining permits required for the proposed project. (See Appendix V on page 40 for a list of possible required permits.)

Mark as Attachment E-3.

E-4 Local land use plans

Provide a listing of all relevant local land use or general plans and description of how the proposed project fits within those plans.

Mark as Attachment E-4.

E-5 State and local statutes and regulations

Provide a list of all other federal, State and local statutes, and regulations governing the proposed project, including any applicable local surface water and groundwater ordinances and evidence of, or a plan for, compliance.

Include a copy of the current Water Distribution System Operator certification that meets the requirements of Section 106885 of the California Health and Safety Code. If no certification is available, please explain.

Mark as Attachment E-5.

Part F—Cost Effectiveness

Part F evaluates the economic benefits and costs of the proposed Infrastructure Rehabilitation projects. In order to meet the Threshold Criterion for cost effectiveness, all projects must have benefits that are equal to or exceed their costs (B/C $\geq$ 1.0). Since cost effectiveness is a threshold criterion, an applicant need only demonstrate that the total water savings benefits are equal to or exceed project costs to meet this threshold.

Applicants can claim benefits due to the reduction of water distribution system water losses, as calculated in Section C-1.

In those cases where an applicant is also replacing a failing system component as described in Section C-2, the applicant may calculate benefits due to a reduction in risk. These benefits may be added to the water savings benefits and the B/C ratio calculated accordingly.

In order to quantify the benefits of reducing risk from a failing distribution system component, applicants should develop an estimate of the annual probability of failure at the beginning and end of the analysis period; for purposes of this program, the analysis period is two years. Next, provide a description of the consequences of failure and an estimate of the cost for replacement of the system component at the time of failure. DWR will utilize this information to calculate the benefits due to the reduction in risk. Applicants claiming this type of benefit must provide supporting documentation that the specified water distribution component is failing, such as a determination made to that effect by a California registered civil engineer.

Applicants seeking funding only to replace a failing, but non-leaking water distribution system component will be limited to the benefits of the reduction of risk in calculation of the B/C ratio for their projects.

Tables 1 through 6 in Appendix III enable the applicant to develop a B/C ratio based on water savings over a 50-year analysis period. Table 1 summarizes the proposed project's performance (total annual water savings). Tables 2 through 4 summarize the project's capital and operations and maintenance (O&M) costs and allow computation of a total cost. Table 5 computes the project's water supply benefits using three possible methods. Table 6 calculates the B/C ratio based on water savings. As noted above, to be considered cost effective, the project's benefits must be equal to or greater than its costs.

F-1 Analysis assumptions

Applicants claiming water savings benefits must use the following assumptions in determining the benefits and costs for the proposed project:

- **Period of analysis**. The economic evaluation will be based on a 50-year analysis period.
- **Inflation and escalation**. For ease of analysis, applicants will assume zero future inflation and escalation of costs.
- **Discount rate**. Because benefits and costs are evaluated over a 50-year period, they must be discounted to reflect the value of money over time (a dollar received today is worth more than one received in the future). DWR uses a 6 percent discount rate.
- **Dollar value base year**. All benefits and costs will be expressed in current year dollars (please indicate year). If dollar estimates are only available for prior years, the following table can be

used to update these costs to year 2003 estimated price levels using the Implicit Gross Domestic Product Price Deflator (IPD.) The following table shows the IPD for the years 1980 through 2003. Using the update factor of 1.25 obtained from this table, $1,000 reported in 1990 dollars would be equivalent to $1,310 in year 2003 dollars.

Year	IPD[1]	Factor
1980	55.1	2.02
1981	60.7	1.84
1982	65.0	1.72
1983	68.0	1.64
1984	70.6	1.58
1985	73.0	1.53
1986	74.7	1.49
1987	76.7	1.45
1988	79.0	1.41
1989	82.2	1.36
1990	85.2	1.31
1991	88.8	1.26
1992	91.2	1.22
1993	93.3	1.20
1994	95.3	1.17
1995	97.5	1.14
1996	99.4	1.12
1997	101.3	1.10
1998	102.8	1.08
1999	104.1	1.07
2000	106.1	1.05
2001	108.7	1.03
2002	110.2	1.01
2003	111.5	1.00

1Source: Department of Commerce, Bureau of Economic Analysis

- **Multiple-funded projects.** The economic analysis will be conducted for the entire project, regardless of funding sources. All project costs (capital and O&M) must be included in the economic analysis, even if the applicant-requested grant only funds part of the project.

Following are instructions for completing Tables 1 through 6 in Appendix III. These tables assume that the project's benefits and costs are relatively constant from one year to the next over the analysis period.

F-2 Project performance

Table 1 shows the expected total average annual water savings (in acre-feet) to be realized from the project. These numbers should match the information developed for the Water Savings Section (C-1).

Mark the table as Attachment F-2.

F-3 Project costs

Project costs usually include capital (construction) and annual operation and maintenance (O&M) costs. Although some project costs are not fundable under this program, all costs required to achieve project benefits must be included in the economic evaluation. If the project consists of multiple components, include all of them in the project budget.

Table 2 shows the capital costs required to plan and construct the project. Although capital costs can be spread over more than one year, Table 2 assumes that all capital costs are incurred in one year. In Table 2, enter costs for the following categories in column (b):

- Land Purchase/Easement
- Planning/Design/Engineering
- Materials/Installation
- Structures
- Equipment Purchases/ Rentals
- Environmental Mitigation/Enhancement
- Construction/Administration/Overhead
- Project/Legal/License Fees
- Other

Table 2 includes allowances for a 15 percent contingency cost to be computed in column (d) for each of the above categories. Capital costs and associated contingency costs are added together in column (e); column (e) is then summed to a Total near the bottom of the table. This total must match the Project Budget prepared in Section A-3. Total capital costs are then multiplied by a capital recovery factor (.0634) which annualizes the total capital cost over the 50-year analysis period using a 6-percent discount rate. This annualized capital cost is shown at the bottom of Table 2.

NOTE: Table 2 excludes financial costs, such as interest costs during construction and long-term debt service costs.

Table 3 summarizes annual operations and maintenance costs incurred once the project begins operation. These may include administration, column (a); operations, column (b); maintenance, column (c); "other" costs, column (d); and total annual O&M costs, column (e). If a major component of the project requires replacement before the end of the 50-year analysis period, then annual replacement costs should be included in the "other" category.

Table 4 computes the annual costs of the project over the analysis period by combining the annualized capital costs, column (a), with the annual O&M costs, column (b), and summing them in column (c).

Mark the tables as Attachment F-3.

F-4 Project Benefits

Water supply benefits are computed in Table 5. The value of the project's water supply is determined by how the water will be used. If the applicant has enough water supplies for the foreseeable future, then the water conserved by the project will allow that agency to reduce the amount of water purchased, diverted, or pumped from its most expensive current water supply source. However, if the applicant

needs to augment water supplies to meet future demands, then the value to the water agency is measured by the least-cost alternative that may be eliminated or delayed because of the project. Finally, if the applicant plans to sell all or part of the conserved water to existing customers, new customers, or other agencies, then the value of the conserved water can be measured by the expected price for which it is sold, thus generating revenue. Although in most cases only one of those benefits will apply, it is possible that a combination of benefits can occur.

Tables 5a, 5b, and 5c allow the applicant to compute three types of water supply benefits that might result from the project. From these three types of water supply benefits (listed below), the applicant will need to determine the ones most appropriate for the proposed project. These benefits are then totaled in Table 5d.

Table 5a—For applicants with sufficient water supplies, Table 5a is completed by showing the current major sources of supply available to the agency, column (a), along with the cost of obtaining water from these sources, column (b). The most expensive source(s) are then chosen as the benefit measure, as these will be likely sources from which supplies will be reduced as a result of the project.

Table 5b—For applicants needing to augment current supplies, Table 5b is completed to identify the least-cost alternative that may be delayed or eliminated as a result of the project. The name of the alternative(s) is entered into column (a), and its associated capital costs are entered into column (b). Column (b) is multiplied by the capital recovery factor in column (c) to obtain annual capital costs, column (d), to which are added annual O&M costs, column (e), to obtain total annual costs, column (f).

Table 5c—If the applicant plans on selling all or part of the conserved water supply, Table 5c is used; column (a) lists the parties that may be potentially buying project supplies, column (b) lists the amount of water to be sold to each, and column (c) shows the projected selling price. However, depending upon hydrologic conditions, it is very likely that these water sales may not occur every year over the analysis period, in column (d), enter the expected frequency of sales as a percentage. For example, if sales are only expected to occur about half of the years, then .50 is entered in column (d). This percentage is then used to "adjust" the selling price in column (e) to obtain actual sales revenue ($). (In reality, the selling price is not changing. However, a mathematical "adjustment" is required to account for sales not occurring every year.)

If the applicant is likely to receive an "option fee" from a purchasing agency, then this is shown in column (f). (An option fee is sometimes paid by a contracting agency to a selling agency to maintain the right of the contracting agency to buy water whenever needed. Although the water may not be purchased every year, the fee is usually paid every year.) The option fee is then added to the actual sales revenue to obtain the final expected revenue ($) that can be realized from selling the water, column (g).

Table 5d sums the benefits from the project. Enter the amount from Table 5a in the cell for avoided costs of Current Supply. Enter the amount from Table 5b in the cell for alternative costs of future supply. Enter the amount from Table 5c in the cell for water sales. Add these numbers together to generate the total water supply benefits.

Mark the tables as Attachment F-4.

F-5 Benefit/cost ratio

Table 6, on page 38, computes the B/C ratio (based on reduction of existing water losses) from information developed in Tables 1 through 5. In the first row, enter the project's annual benefits. These benefits were developed in table 5a, 5b, 5c and totaled in table 5d. In the second row, enter the project's costs, developed in Table 4. To calculate the B/C ratio, divide the project's benefits by its costs. The B/C ratio must be equal to or greater than 1.0 for the project to be considered cost effective.

Note: If the applicant plans to replace a failing water distribution system component that threatens the health, safety, welfare and economy of the service area, additional benefits may be calculated due to a reduction in risk of failure. Taking into consideration these additional benefits, a revised B/C ratio could be calculated for the project. Additionally, if the project has other costs or benefits that are not adequately captured in the tables, describe them here and provide supporting documentation. Please call Farhad Farnam of DWR's Economic Analysis Unit at (916) 653-9415 for additional information.

Mark the table as Attachment F-5.

Part G—Ranking Criteria

Ranking Criteria Table

Criteria	High (5)	M/H (4)	Med (3)	M/L (2)	Low (1)	Weight	Total
G-1. Financial Need						2	
G-2. Readiness to Proceed						1	
G-3. Estimated System Water Losses						2	
G-4. Threat to Health, Safety, Welfare, and Economy						2	
TOTAL SCORE							

The information provided in Part G will be used to score applications that meet all of the Threshold Criteria contained in Parts A through F. Each Ranking Criterion will be scored on a scale of 1 to 5, with 1 being "Low," 2 being "Medium/Low", 3 being "Medium," 4 being "Medium/High" and 5 being "High." The score for each criterion will then be multiplied by a weighting factor to achieve a "weighted score" for each criterion. Next, the weighted ranking criteria scores are added to obtain a total score for the application (maximum of 35 points per application). The total score for each application will be used to select projects for funding as described in the section entitled "Application Evaluation and Selection Process" of this application package.

G-1 Financial need

To determine an applicant's financial need, DWR will use the information provided for the January 1999 average water bill from Part A-8 and the 1999 median household income from Part A-9 (based on 2000 Census data). DWR will calculate the percentage of the median household income represented by the 1999 water service charges.

Applicants with a percentage equal to or greater than 1.75 % of median household income will score "High". Applicants with a percentage of 1.5% to 1.74% will score "Medium High". Applicants with a percentage of 1.25% to 1.49% will score "Medium". Applicants with a percentage of 1.0% to 1.24% will score "Medium Low". Applicants with a percentage of less than 1.0 % will score "Low".

G-2 Readiness to proceed with the project

Indicate the expected bid date for the project, taking into consideration completion of all required environmental documentation and completion of final plans and specifications. Provide justification supporting the bid date determination and explaining the factors used to make that determination.

☐ Within six months from the date funded

☐ Within nine months from the date funded

☐ Within one year from the date funded

☐ Within 15 months from the date funded

☐ Greater than 15 months from the date funded – Specify the number of months until construction is anticipated to begin: _____.

Applicants that are ready to bid the project within six months will be scored "High" for this criterion; within nine months will be scored "Medium/High"; within one year would be scored "Medium"; within 15 months will be scored "Medium/Low"; and greater than 15 months will be scored "Low."

Mark as Attachment G-2.

G-3 Estimated system water losses

Using the table below, indicate the estimated existing water loss for the entire distribution system. Cite and attach pertinent supporting documentation.

☐	>0%	<8%	Low
☐	>8%	<15%	Medium/Low
☐	>15%	<25%	Medium
☐	>25%	<35%	Medium/High
☐	>35%		High

Applications lacking documentation or with poorly supported documentation will be scored "Low."

Mark as Attachment G-3.

G-4 Threat to the health, safety, welfare and economy of the service area

If applicable, identify the failing water distribution system component(s) to be replaced. To be eligible, the system component(s) must pose a significant threat to the health, safety, welfare, and economy of the service area. The potential for failure must be certified by a California registered civil engineer and supporting documentation provided.

Provide an explanation of the consequences of failure and/or the consequences of past failures. For example, if there was a water main break, how long were the customers out of service? Was service interrupted throughout the water service area or did the break only affect the area in the immediate vicinity? How much water was lost? Was there property damage? Were businesses affected?

Quantify these consequences, if possible. For example, "the hotel had to reduce occupancy by 50 percent for one day, resulting in a revenue loss of $10,000."

Applications that adequately demonstrate a threat with major consequences to the health, safety, welfare, and economy of the service area will be scored "High".

Applications that adequately demonstrate a threat with moderately high consequences to the health, safety, welfare, and economy of the service area will be scored "Medium/High".

Applications that adequately demonstrate a threat with moderate consequences to the health, safety, welfare, and economy of the service area will be scored “Medium”.

Applications that adequately demonstrate a threat with minor consequences to the health, safety, welfare, and economy of the service area will be scored “Medium/Low”.

Applications that do not propose to replace a failing system component or that provide vaguely worded, minimally documented certifications will be scored “Low” for this criterion.

Mark as Attachment G-4.

Appendix I—Checklist of attachments

Complete this checklist to confirm all sections and attachments to this application package have been completed or addressed.

Part A

- ☐ A-1 Application cover sheet
- ☐ A-2 Applicant representatives
- ☐ A-3 Project costs
- ☐ A-4 Plat map of service area
- ☐ A-5 Authorizing resolution
- ☐ A-6 Financial statements
- ☐ A-7 Cash reserves
- ☐ A-8 Rate and service structure
- ☐ A-9 Population data
- ☐ A-10 Applicant authority
- ☐ A-11 Operation and maintenance

Part B

- ☐ B-2 Map and narrative description of project
- ☐ B-3 Legal description of project site
- ☐ B-4 Timetable

Part C

- ☐ C-1 Total water savings to be produced by the project
- ☐ C-2 Failing system component(s)

Part D

- ☐ D-1 Engineering feasibility certification statement (Appendix II)
- ☐ D-2 Project reports and previous studies
- ☐ D-3 Project plans and specifications
- ☐ D-4 Construction inspection plan

Part E

- ☐ E-1 CEQA/NEPA documentation
- ☐ E-2 Demonstration of community support and/or opposition
- ☐ E-3 Permits, easements, licenses, acquisitions, and certifications (Appendix V)
- ☐ E-4 Local land use plans
- ☐ E-5 State and local statutes and regulations

Part F

- ☐ F-2 Project performance (Appendix III, Table 3)
- ☐ F-3 Project costs (Appendix III, Tables 2, 3, and 4)
- ☐ F-4 Project benefits (Appendix III, Tables 5a, 5b, 5c and 5d)
- ☐ F-5 Benefit/cost ratio (Appendix III, Table 6)

Part G

- ☐ G-2 Readiness to proceed with the project
- ☐ G-3 Estimated system water losses
- ☐ G-4 Threat to the health, safety, welfare and economy of the service area

If applicable (needed only if there are loans associated with project financing):

- ☐ Appendix VII Existing debt
- ☐ Appendix VIII Repayment method/ loan security

Appendix II

Certification statement

Engineering feasibility statement

I, _____

a California registered civil engineer, have reviewed the information presented in support of this application. Based on this information, and any other knowledge I have regarding the proposed project, I find that it can be designed, constructed, and operated to accomplish the purpose for which it is planned. There is a sufficient water supply for the project and the applicant has between 200 and 16,000 water connections within their service area. The information I have reviewed to document this statement is included *(provide list, e.g., feasibility studies, engineering design studies, water rights permits, etc.)*.

_____

(Original signature and stamp with expiration date)

Appendix III

Local benefit/cost analysis—water savings - Infrastructure Rehabilitation

Table 1—Project performance

(a)	Total Annual Water Savings (AF) (1)	

(1) From C-1

Table 2—Capital costs

	Capital Cost Category (a)	Cost (b)	Contingency Costs Percent (c)	 Dollars (d) (bxc)	Subtotal (e) (b+d)
(a)	Land Purchase/Easement	$		$	$
(b)	Planning/Design/Engineering	$	0.15	$	$
(c)	Materials/Installation	$	0.15	$	$
(d)	Structures	$	0.15	$	$
(e)	Equipment Purchases/Rentals	$	0.15	$	$
(f)	Environmental Mitigation/ Enhancement	$	0.15	$	$
(g)	Construction Administration/ Overhead	$	0.15	$	$
(h)	Project Legal/License Fees	$	0.15	$	$
(i)	Other	$	0.15	$	$
(i)	Total (1) *(a + ... + i)*	$		$	$
(k)	Capital Recovery Factor .0634 *(6%; 50 years)*	$		$	$
(l)	Annual Capital Costs *(j x k)*	$		$	$

1. Cost must match Project Budget prepared in Section A-3.

Table 3—Annual operations and maintenance costs

Administration (a)	Operations (b)	Maintenance (c)	Other (d)	Total (e)
$	$	$	$	$

Table 4—Annual cost

Annual Capital Cost (1) (a)	Annual O&M Costs (2) (b)	Total Annual Costs (c) *(a + b)*
$	$	$

(1) From Table 2
(2) From Table 3

Table 5—Water supply benefits

5a—Avoided costs of current supply sources

Supply Sources (a)	Cost of Water ($) (b)

(1) 6% discount rate; 50 years.

5b—Alternative costs of future supply sources

Future Supply Sources (a)	Total Capital Costs ($) (b)	Capital Recovery Factor (1) (c)	Annual Capital Costs ($) (d) *(b x c)*	Annual O & M Costs ($) (e)	Total Annual Costs ($) (f) *(d + e)*
	$	0.634	$	$	$
	$	0.634	$	$	$
	$	0.634	$	$	$
	$	0.634	$	$	$
	$	0.634	$	$	$

5c—Water sales revenue *(vendibility)*

Parties Purchasing Project Supplies (a)	Amount of Water to be Sold (1) (AF) (b)	Projected Selling Price ($/AF) (c)	Expected Frequency of Sales (2) (%) (d)	Actual Sales Revenue ($) (e) *(b x c x d)*	"Option" Fee (3) ($) (f)	Total Sales Revenue ($) (g) *(e + f)*
		$		$	$	$
		$		$	$	$
		$		$	$	$
		$		$	$	$
		$		$	$	$

(1) Maximum amount of water available to be sold per year; must not exceed amount shown in Table 1.
(2) During the 50-year analysis period, what percentage of years are water sales expected to occur? For example, if water will only be sold half of the years, enter 0.5.
(3) "Option" fees are sometimes paid by a contracting agency to a selling agency to maintain the right of the contracting agency to buy water whenever needed. Although the water may not be purchased every year, the fee is usually paid every year.

5d—Total water supply benefits

Avoided Costs of Current Supply (a)	Alternative Costs of Future Supply (b)	Water Sales (c)	Total (d)
$	$	$	$
$	$	$	$
$	$	$	$

Table 6—Benefit/cost ratio

(a)	Annual Project Benefits ($) (1)	$
(b)	Annual Project Costs ($) (2)	$
(c)	Benefit/Cost Ratio *(a / b)*	

(1) From Table 5d
(2) From Table 4

Appendix IV

Sample resolution

Resolution No. _____

Resolved by the _____
(Governing body, city council, or other)

of the _____
(Agency, city, county, or other)

that pursuant and subject to all of the terms and provisions of the Safe Drinking Water, Clean Water, Watershed Protection, and Flood Protection Act, and amendments thereto, application by this _____
(Agency, city, county, or other)

be made to the California Department of Water Resources to obtain a construction grant for an Infrastructure Rehabilitation project (Chapter 8, Article 5).

The _____ of the
(Presiding officer, president, city manager, or other official)

_____ is hereby authorized and directed to
(Agency, city, county, or other)

prepare the necessary data, make investigations, sign, and file such application with the California Department of Water Resources.

Passed and adopted at a regular meeting of the _____
(Board of Directors, Supervisors, etc.)

of the _____
(Agency, city, county, or other)

on _____ .
(Date)

affix official seal here

Authorized Original Signature_____

Printed Name _____

Title _____

Clerk/Secretary _____

Appendix V—Permit Checklist

Consider whether any of the permits listed in this Appendix are needed for construction of your project. Discuss in Part E. Note: This list is not comprehensive; other permits may be required for your proposed project. An asterisk (*) indicates that you must obtain these permits, if applicable, prior to contract execution for a construction project.

Type I: Is the project located in the areas listed?

Geographic Area	Agency	Permit
From 3 miles offshore to 1,000 yards inland	Coastal Commission	Coastal Development Permit
San Francisco, San Pablo, and Suisun bays from high water to 100 feet inland	San Francisco Bay Conservation and Development Commission	Development Permit
Suisun Marsh	San Francisco Bay Conservation and Development Commission	Marsh Development Permit
Lake Tahoe watershed	Tahoe Regional Planning Agency	Development Permit
Floodways in the Central Valley	The Reclamation Board	Encroachment Permit
*Navigable waterways or streams affecting navigable waterways	U.S. Army Corps of Engineers	Section 10 Permit
*Wetlands, including coastal and inland waters, lakes	U.S. Army Corps of Engineers	Section 404 Permit for disposal of dredged material or placement of any fill material into wetlands, lakes, rivers or tributaries
	Regional Water Quality Control Board	Section 401 Certification
*Wild and scenic rivers	The Resources Agency	Approval of diversions; Finding of Compatibility

Type II: Does the project affect any of the resources listed?

Resource	Agency	Permit
Air	Air Pollution Control District	Authority to Construct and Permit to Operate for Activities emitting pollutants to the atmosphere
*Fish and wildlife habitat	U.S. Fish and Wildlife Service	Fish and Wildlife Agreements
	Department of Fish and Game	Streambed or Lake Alteration Agreements for Activities in streams or lakes and channels, and crossing spawning gravel protection
	Department of Fish and Game	Fish and Wildlife Agreements
*Water rights	State Water Resources Control Board, Regional Boards	Permit to Appropriate and State of Diversion and Use for Activities diverting surface water not previously appropriated
*Water quality	State Water Resources Control Board, Regional Boards	National Pollutant Discharge Permit or Waste Discharge Requirements for discharges to surface water; Water Reclamation Requirements
*Wetlands, including coastal and inland waters, lakes, rivers	U.S. Army Corps of Engineers	Section 404 Permit for disposal of dredged material or placement of any fill material into wetlands, lakes, rivers, or tributaries
*Navigable waters and tributaries to them	U.S. Army Corps of Engineers	Section 10 Permit for dredging, filling dock, groins, land jetties or for any obstruction or effect on the capacity of navigable waters
Navigable water and tributaries to them	Federal Energy Regulatory Commission	FERC License

Type II: Does the project affect any of the resources listed? *(continued)*

Resource	Agency	Permit
Beds of navigable waters	State Lands Commission	Land Use Lease for encroachments and docks
*Endangered species	U.S. Fish and Wildlife Service	Section 10a Incidental Take Permit
	Department of Fish and Game	Incidental Take Permit
Drinking water	Department of Health Services	Title 22 Drinking Water Standards

Type III: Does the project involve any of the following activites?

Activity	Agency	Permit
Power plants and transmission lines	California Energy Commission	Notice of Intention and Application for Certification
Generation of electrical power	Federal Energy Regulatory Commission	FERC Permit
Conversion of timberland to other uses	Department of Forestry	Timberland Conversion Permit
Cancellation of a Williamson Act Open Space	The Resources Agency	Approval of the Waiver of a Contract Cancellation Fee
Bridge construction	U.S. Coast Guard	Permit for bridges and cause-ways over navigable waters
Mineral prospecting and extraction of State lands	State Lands Commission	Prospecting Permit and Extraction Lease
Oil or gas well	Department of Conservation, Division of Oil and Gas	Oil or Gas Well Permit
Geothermal well	Department of Conservation, Division of Oil and Gas	Geothermal Well Permit

Type III: Does the project involve any of the following activites? *(continued)*

Activity	Agency	Permit
Geothermal prospecting and development on State lands	State Lands Commission	Geothermal Prospecting Permit and Extraction Lease
Encroachment on or across a State highway	Department of Transporation	Encroachment Permit; Utility Encroachment Permit
Construction, alteration, maintenance, operation, and removal of dams or reservoirs	Department of Water Resources, Division of Safety of Dams	Approval of Plans
Construction or alteration of dams	Federal Energy Regulatory Commission	FERC License
Dredging	Department of Fish and Game	Standard or Special Suction
Removal of sand, gravel, and dredge spoils from State-owned lands	State Lands Commission	Grant or Privilege
*Dredging or placement of fill or other materials or structure in wetlands	U.S. Army Corps of Engineers	404 Permit
*Water diversion from a State wild or scenic river	Regional Water Quality Control Board	401 Certification
Surface mining	The Resources Agency	Determination of Need and No Adverse Effect
	City or County	Reclamation Plan

Type IV: Property rights

Considerations

- Who owns or controls the land? *(Private owner, lessee, public agency owner?)*
- Does the grant applicant have the landowner's permission?

Appendix VI – Definitions

The words used in this application package have the meanings set forth below:

a. "Applicant" means a local agency as defined in Section 79151 (f) of the Water Code located in an economically disadvantaged service area with no less than 200 and no more than 16,000 service connections.

b. "Bay-Delta" means the San Francisco Bay/Sacramento-San Joaquin Delta Estuary.

c. "Bond Law" means the Safe Drinking Water, Clean Water, Watershed Protection and Flood Protection Act; Infrastructure Rehabilitation Program, under the Water Conservation Account, as set forth in Division 26, Chapter 8, Article 5 of the Water Code (commencing at Section 79161).

d. "CALFED" refers to the consortium of State and federal agencies with management and regulatory responsibilities in the Bay-Delta.

e. "CALFED Bay-Delta Program" means the undertaking by State and federal agencies pursuant to the Framework Agreement dated June 20, 1994, to develop a long-term solution to water management, environmental, and other problems in the Bay-Delta watershed by means of a programmatic environmental impact statement/environmental impact report.

f. "Economically disadvantaged area" means any area of the State for which both of the following statements apply:

    1) An annual median household income of less than $40,000 based on the most recent federal census.

    2) An annual average unemployment rate of greater than 9 percent based on the most recent federal census.

g. "Eligible costs" means costs of an Infrastructure Rehabilitation feasibility study or construction project that may be paid from funding made under the Bond Law. Funding awarded for feasibility studies of Infrastructure Rehabilitation projects, pursuant to the Bond Law, may be used for reasonable costs of engineering, geologic and hydrologic studies, and preparation of environmental documentation. Costs incurred prior to applying for or entering into a contract for funding, including preparation of the application to establish eligibility and costs for a feasibility study done to assist in the preparation of a construction grant application, may at DWR's discretion be reimbursed from the grant proceeds.

    Costs that **are not** eligible for grant funding include:

    1) Costs, other than those noted above, incurred prior to applying for or receiving a grant,

    2) Operation and maintenance costs,

    3) Purchase of equipment not an integral part of the project,

4) Establishing a reserve fund,

5) Purchase of water supplies,

6) Replacement of existing funding sources for ongoing programs,

7) Support of existing agency requirements and mandates,

8) Purchase of land in excess of the minimum required acreage necessary to operate as an integral part of the project, as set forth and detailed by engineering and feasibility studies, and

9) Payment of principal or interest of existing indebtedness or any interest payments unless:

   a) The debt is incurred after issuance of a letter of commitment of funds by DWR;

   b) DWR agrees in writing to the eligibility of the costs for reimbursement before the debt is incurred; and

   c) The purposes for which the debt is incurred are otherwise eligible project costs.

h. "Engineering feasibility" means a determination by a civil engineer, registered to practice in California, that the proposed project can be designed, constructed, and operated to accomplish the purposes for which it is planned, and that it is planned in accordance with generally accepted engineering and environmental principles and concepts. Hydraulic analyses, leakage management analyses, pressure management analyses, zone flow analyses, system condition assessments and water audits are important factors to consider when determining engineering feasibility.

i. "Environmental documentation" means written documents prepared and filed in compliance with all applicable laws and guidelines related to the protection of the Projects must result in the reduction or environment and resources of the State, including, but not limited to, California Environmental Quality Act, National Environmental Policy Act, the federal Clean Water Act, the California Fish and Game Code, and the California Endangered Species Act.

j. "Failing distribution system component" means any water distribution system element that has a significant risk of failure within two years from the date of application. Examples of eligible failing distribution system components include, but are not limited to:

   - Failing water distribution system pipelines (raw water transmission lines, mains, laterals, valves, or other integral appurtenances)

   - Failing pump stations

   - Failing water tanks

   - Failing water distribution system controls such as flow meters or water level recorders

   Wells, surface water diversions, development of new water sources, and domestic water meter retrofits <u>are not eligible</u>.

k. "Feasibility study" means a study conducted for the purpose of determining the engineering, hydrologic, environmental, economic, institutional and financial feasibility of a proposed Infrastructure Rehabilitation project. Feasibility study results should provide most of the information needed to develop a complete construction grant application. Feasibility studies must be project specific. General planning studies or reconnaissance level studies are not eligible since they do not have the objective of defining then determining the feasibility of a specific preferred project alternative involving construction.

   In addition, feasibility studies for projects to replace wells, install a new domestic water meters, develop new water supply or surface water diversion, construct agricultural water distribution system improvements or make improvements to private property are not eligible for funding.

l. "Financial feasibility" means a determination by DWR that the applicant can complete the construction project, or feasibility study, with the amount of funds requested in the grant application. If the project or feasibility study cannot be completed within the amount of funding requested, but the applicant can establish, to DWR's satisfaction, that additional funds from other sources are available to complete the project or feasibility study, DWR may determine that the project or feasibility study is financially feasible. This determination will be contingent upon the applicant establishing to DWR's satisfaction, that it has the ability to repay any loans identified as additional sources of funds for completion of the project or feasibility study.

m. "Infrastructure Rehabilitation project" means a project located in an economically disadvantaged area for the repair, replacement, restoration, or rehabilitation of an existing water distribution system, that delivers water for domestic, municipal or industrial use. Facilities may include pipelines, pump stations, valves, flow meters, reservoirs and all other appurtenant water delivery facilities. Projects must result in the reduction or elimination of significant distribution system losses or replace a failing system component that threatens the health, safety, welfare or economy of the area relying on the water distribution system.

   Projects to replace wells, replace or install domestic water meters, develop new water supply or surface water diversion, construct agricultural water distribution system improvements or make improvements to private property are not eligible for funding.

n. "Local agency" means any city, county, city and county, district, joint powers authority or other political subdivision of the State, or an incorporated mutual water company.

o. "Service connection" means the point of connection between the customer's piping or constructed conveyance. A connection to a system that delivers water by a constructed conveyance other than a pipe shall not be considered a connection

p. "Unemployed" means all civilians 16 years old or over who (1) were neither "at work" nor "with a job, but not at work" during the reference census week and (2) were looking for work during the last four weeks, and (3) were available to start a job. Also included as unemployed are civilians 16 years and older who did not work at all during the reference week and were on temporary layoff from a job, had been informed that they would be recalled to work within the next six months or had been given a date to return to work, and were available to return to work during the reference week, except for temporary illness.

Students, individuals taking care of the home or family, retired workers, seasonal workers enumerated in an off-season who were not looking for work, institutionalized persons, and persons doing only incidental unpaid family work (less than 15 hours during the reference week) are not considered unemployed. This is because the U.S. Census Bureau does nor consider them as being in the civilian labor force.

For more details, see the Employment Status section of the 2000 Census of Population and Housing, Summary File #3.

Appendix VII

(Complete this form only if there are loans from other sources associated with project financing)

Existing debt

Summarize all existing agency long-term indebtedness, including bonds and any pending indebtedness *(e.g., U.S. Department of Agriculture Rural Development loans or Economic Development Agency loans)*. If necessary, include additional pages.

Lender:	**Lender:**	**Lender:**
Original Principal $_____	Original Principal $_____	Original Principal $_____
Purpose:_____	Purpose:_____	Purpose:_____
Original Date:_____	Original Date:_____	Original Date:_____
Original Terms: Percent____ Years_____	Original Terms: Percent____ Years_____	Original Terms: Percent____ Years_____
Annual Payment_____	Annual Payment_____	Annual Payment_____
Current Principal $_____	Current Principal $_____	Current Principal $_____
Remaining years to pay_____	Remaining years to pay_____	Remaining years to pay_____

Has this agency ever issued bonds or notes for debt? Yes ☐ No ☐

If yes, provide the following information for the two most recent issues:

Purpose	Purpose
(Check one) ☐ General Obligation ☐ Revenue Bond	(Check one) ☐ General Obligation ☐ Revenue Bond
Principal Amount $ _____	Principal Amount $_____
Interest Rate True interest cost _____ Net interest cost _____	Interest Rate True interest cost _____ Net interest cost _____
Terms _____	Terms _____
Date of Issue _____	Date of Issue _____
Rating _____	Rating _____
Rating Agency _____	Rating Agency _____

How will the proposed DWR loan affect long-term and short-term financial capacity *(qualitatively/quantitatively)*?

_____

_____

Current debt-to-income ratio (percent) : _____ After proposed construction loan (percent) : _____

Appendix VIII

(Complete this form only if there are loans from other sources associated with project financing)

Repayment method

Indicate the agency's proposed method to repay the feasibility study loan:

☐ 1. Standby charges

☐ 2. Excess revenues
Source: _____

☐ 3. Cost savings

☐ 4. User fees Flat rate ____ Quantity of water used ____

☐ 5. Assessments

☐ 6. Other (describe):

_____

If methods 1, 4, or 5 are to be used to repay the loan, include a plan to divide costs among the system users. Use dollar estimates.

Explain how the agency proposes to secure this loan if required to do so by the State (*dedicated revenues, assessments, etc*.). Cite statutory authority to use this method to secure the loan.

_____

_____

_____

Statutory Authority:

_____

_____

_____

Appendix IX—Determination of Economically Disadvantaged Area

Getting Census Data for Local Agency Infrastructure Rehabilitation Grant Applications—A Brief How-to Guide

What Census-based Criteria Are Used in Determining IR Grant Eligibility?
The civilian labor force unemployment rate and median household income as obtained from the census data in Census 2000 Summary File 3.

Obtaining Unemployment and Household Income Estimates
Getting the necessary data involves two steps:

1. *Identify the area* in which the local agency is located by census geography.
2. O*btain the data* for that area.

Once these two steps are completed, the estimates for the local agency can be constructed.

Identifying the Area (1)

1. Draw the boundaries of the service area on a map that shows census blocks, block groups, and tracts.
2. List all blocks in the service area, noting the county, census tracts, **and** block groups within which they are located.

Identifying the Area (2)
If a whole block group or tract is within the area, then it is not necessary to list the blocks within that block group or tract. The end result for a local agency will be something like: Tracts 1, 2, 3; Tract 4:Block Group 1; Tract 5:Block Group 2:Blocks 1001, 1003, 1007, 1009, 1011, 1013 (partial).

Identifying the Area (3) - Remainders
If a block is only partially within the service area, include it on the list. Socioeconomic data is only provided for block groups or higher, and so the blocks and partial blocks must be converted to their proportionate equivalent of the block group in which they are located.

Proportionate Block Group Equivalents
To compute the block group equivalents, it is necessary to obtain the population for each block. Population for partial blocks should be calculated as proportional to the area of the block that is included inside the service area boundaries.

Obtaining the Data for Proportionate Block Group Equivalents

1. Go to www.census.gov/ and choose the American Factfinder link on the left.
2. Halfway down the page choose the "2000 Summary File 1" link under the "Data Sets" heading.
3. Once the Summary File 1 link is chosen, the next screen will provide choices as to kinds of tables. Choose "Detailed Tables."

Obtaining the Data for Proportionate Block Group Equivalents (2)

1. Choose a geographic type – "Block". Choose the appropriate state, county, census tract, and block group.
2. Choose the desired blocks. Click "Add". The result will be a list of census blocks for which population will be obtained. Repeat the process by picking the geographic type "Block Group"

and selecting the block group(s) in which the previously selected blocks are located. Select "next."

Obtaining the Data for Proportionate Block Group Equivalents (3)
Choose the appropriate table – "P1 Total Population" and click "Add". Click "Show Result." The result will be the appropriate populations for the blocks. Partial blocks should have their population multiplied by the proportion of the block that is in the service area to get the estimated population for the those blocks.

Obtaining the Data for Proportionate Block Group Equivalents (4)
Sum the populations for all the blocks and partial blocks within a particular block group. Divide that population by the total population for the (whole) block group. That is the proportionate block group equivalent. The final result is then a list of census tracts, whole block groups, and block group equivalents. This is what needs to be passed on to DWR so that the appropriate local agency estimates can be made.

Where Do I Get Maps Showing Census Geographies, e.g. Blocks?

American FactFinder Reference Maps
- Go to the US Census Bureau Web site www.census.gov .
- On the left side of the homepage there are a number of choices in the blue bar – choose the one labeled "American Factfinder."
- On the American Factfinder homepage, go to the bottom and choose the "Reference Maps" in the Maps section. Then drill down as far as you need. (These maps can be saved by right-clicking on them and choosing "Save Picture As…").

Census 2000 Redistricting Block-level Maps
- Go to http://ftp2.census.gov/plmap/pl_blk/st06_California/ to find the California county index and choose the appropriate county.
- The first map in the resulting list, ending in "000.pdf" is an index map, showing the numbers for the appropriate block maps to choose from the list. Choose as many as needed.

Census 2000 Geography Place Block Maps
- Go to http://ftp2.census.gov/geo/maps/blk2000/st06_California/Place/ and choose the appropriate place.

Block-Level Maps on Paper
- Large format (33" x 36") paper maps are available for use at many State Census Data Center affiliates.
- Call (916) 323-4086 for the location of the nearest affiliate.
- The US Census Bureau also sells block- and tract-level maps, look under "Geography" at www.census.gov/mp/www/Tempcat/Catalog.html.

Which Set of Maps?
In general, American FactFinder maps should be the first choice. They are the most flexible, as well as offering the quickest access for depicting a given area. They can be more difficult to read than the others, however. The redistricting maps may be preferred if one has a very small and irregularly shaped service area. The Geo place maps are ideal for single sub-city areas.

What Happens Next?
DWR will pass the Tract-Block Group-Proportionate Block Group Equivalent for any given local agency to the Demographic Research Unit (DRU) within the Department of Finance. DRU will use the information in conjunction with the extracted census data to construct the appropriate unemployment rate and median household income for the local agency.

Reminder
This information is necessary to determine if a local agency meets both eligibility criteria that define an economically disadvantaged area under the IR Program. Potential applicants are strongly encouraged to submit this information to DWR prior to application submittal

For More Information
Contact David A. Rolph in DWR, (916) 651-9635, for details concerning the program itself. Contact Andy Ruppenstein in DOF, (916) 327- 0103, x2526 for concerns regarding census maps or census data.

Appendix X—Water Loss Measurement Guidelines

This grant program requires each applicant to determine water losses for their service area's entire existing distribution system and also for those portions to be replaced by the proposed project. The following guidelines are designed to assist applicants to make those water loss determinations. However, applicants are not limited to using these guidelines. If other methods are used, the applicant will need to provide justification for using the given method. Regardless of the method, it's important that applicants provide adequate supporting documentation (state assumptions and show calculations).

Applicants with very poor leak repair records, missing data, etc., could have a problem providing the Department with verifiable system water loss figures for the pipeline sections to be replaced by proposed projects, particularly if their systems are unmetered. Under these circumstances, applicants are encouraged to submit feasibility study applications instead of construction applications.

Metered Systems

It is important to be able to verify leak numbers (leak repair records, maintenance records, etc.), so provide an explanation as to how the numbers were obtained; include back-up documentation. Using the daily leak repair log, provide the number of leaks repaired, first for the pipeline sections to be replaced by the proposed project and then for the entire distribution system each year for the last three years. If significant pipeline replacement or rehabilitation has occurred in the distribution system outside of the sections to be replaced by the proposed project within the last three years, describe the work, including the time when it was done. If the work was completed a year ago, use the leak figures for the most recent year instead of the last three years. If the work was completed two years ago, use the last two years instead.

For metered distribution systems, the following method, based on leak concentration, may be used to develop a water loss estimate for the existing pipeline sections to be replaced by the proposed project:

a. Develop a linear foot per leak figure for the entire distribution system – Figure "A"

b. Develop a linear foot per leak figure for the pipeline sections to be replaced by the proposed project – Figure "B"

c. Divide Figure "A" by Figure "B" to obtain a multiplier (in most cases, it would be expected that the pipeline sections targeted for replacement by the proposed project would have a greater concentration of leaks; therefore, the multiplier should be greater than 1)

d. Determine the percentage of the entire distribution system length that the length of the sections to be replaced by the proposed project represents

e. Multiply the total annual distribution system water loss (acre feet per year [AFY]) by the percent figure (0.XX) determined in Step "d" above; this will generate a "base" AFY water loss figure for the pipeline sections to be replaced by the proposed project

f. Multiply the "base" AFY water loss figure from Step "e" by the multiplier from Step "c" to obtain the estimated AFY water loss figure for the pipeline sections to be replaced by the proposed project

Example: An applicant determined that their existing metered distribution system, 66,700 linear feet in length, has an unaccounted for water quantity of 25 percent or 200 acre feet per year (total metered production 800 AFY less 600 AFY for delivered sales [based on billing records] and other uses [for examples of other water uses, see Item 6 below]). The proposed project consists entirely of the replacement of 20,000 LF of pipe (30 percent of the total existing distribution system length). No major pipeline replacement or rehabilitation work has taken place during the last three years.

After analyzing their leak repair records, the applicant determined that for the entire distribution system a total of 82, 80, and 93 leaks (including mains and service lines) were repaired in 2000, 2001, and 2002, respectively, for an average of 85 leaks per year. Of that total, it was found by checking the daily leak repair log that an average of 55 leaks per year occurred in the pipeline sections to be replaced by the proposed project. The linear foot per leak figure for the entire distribution system was 66,700 LF divided by 85 or one leak every 784.7 LF (Figure A). The linear foot per leak figure for the pipeline sections to be replaced by the proposed project was 20,000 LF divided by 55 or one leak every 363.6 LF (Figure B). The multiplier is 784.7 LF divided by 363.6 LF, which equals 2.158. The applicant then calculated the "base" water loss figure by taking the unaccounted for water quantity for the entire distribution system – 200 AFY – and multiplying that by 30 percent (which is the percentage of the entire distribution system length that is being replaced by the proposed project) to get 60 AFY. Finally, the applicant multiplied the 60 AFY "base" water loss figure by the 2.158 multiplier to obtain the water loss estimate for the pipeline sections to be replaced by the proposed project, which is 129.5 AFY.

It is possible in some cases for the AFY water loss estimate generated in Step "f" to exceed the total distribution system water loss specified in the application. Obviously, the water loss for the pipeline sections to be replaced by the proposed project can't exceed the estimated water loss for the entire distribution system, and an adjustment will be necessary. In this situation, the water loss total for the pipeline sections to be replaced by the proposed project cannot exceed 90 percent of the total water system loss unless the length of the pipeline sections exceeds 90 percent of the total system length (if that is the case, step up the 90 percent limit accordingly).

Applicants with metered distribution systems can use their annual unaccounted for water figures to determine water loss for their entire existing distribution systems (provide documentation). As mentioned in the above example, to obtain the unaccounted for water quantity for their systems, applicants need to subtract out their delivered sales and other uses from their water production figures. Other uses may include, but are not limited to: hydrant flushing, service line flushing, hydrant accident losses, draining reservoirs, reservoir overflow, reservoir inspection, chlorine and other agency maintenance activities, sewer jetting, and vandalism. Applicants should be prepared to explain their "other" uses. Make sure that the meter that measures water production (from wells, etc.) is properly calibrated and functioning. Otherwise, the meter will need to be recalibrated (the new production records should reflect that change), since poorly calibrated meters will not generate useful data.

Unmetered Systems

The leak concentration water loss estimate method described under Items 4 and 5 applies for metered distribution systems. However, applicants that have unmetered distribution systems along with elevated storage tanks may be able to calculate water loss through night flow measurements. Typically, night flow measurements are made between 2 and 5 a.m. when there is normally little to no water use for domestic or other purposes (during the test period, make sure that there is no ongoing night irrigation).

Supply pumps are shut down during the time of the test and water level changes are measured inside the elevated storage tank. Direct measurement of level changes is preferred over measuring changes in pressure because it is more accurate. You can also download an article that describes how to make these measurements (this article is taken from *On Tap*, a free magazine published by the National Drinking Water Clearinghouse, a program of the National Environmental Services Center. To sign up, please call toll free (800) 624-8301 or send an e-mail to ndwc_orders@mail.nesc.wvu.edu). In situations where it is determined that it is unsafe to make direct measurements, night flow measurements can also be made by using a properly calibrated pressure gauge and data logger to measure the pressure loss in the tank and then correlate that loss to a loss in water depth in the tank. For more information you can download a file that describes the "pressure gauge" process one agency used to develop a night flow water loss calculation.

If night flow measurements are made, the total length of the distribution system served by the given storage tank needs to be determined. Then calculate the percentage of this length that is to be replaced by the proposed project. If the amount is less than 100 percent, follow the steps described under the above Metered Systems heading to develop the water loss estimate for the pipeline sections to be replaced by the proposed project.

Applicants with unmetered distribution systems that are served by single tanks can use night flow measurements from those tanks to determine the total water loss for their existing distribution systems. However, if the distribution system is served by more than one tank, night flow measurements will need to be made from all of the tanks to determine total system water loss; don't just measure the tank that serves the pipeline sections to be replaced by the proposed project.

Zonal Metering

In some cases, applicants with metered systems may be able to calculate project water losses directly through zone metering. For example, if all the water being delivered to a given area can be measured by a zone meter and the proposed project will replace all of the area's pipelines, water loss would be equal to the difference between the zone meter delivery figures and the cumulative delivery figures to each customer in that zone. If the proposed project will replace only part of the area's pipelines, the applicant would need to follow the procedures listed under the Metered Systems heading. Note: for Step "a," instead of using the entire service area's distribution system, the distribution system within the given zone would be used. Also, for Step "e" the total annual existing distribution system water loss (AFY) would be for the entire zone, not for the entire service area.

Water Tank Projects Only

Applicants proposing to replace leaking water storage tanks alone will need to be able to isolate the tank and develop a supportable water loss estimate for the project. Provide an explanation as to how the water loss estimate was developed and include back-up documentation.